NOTES IN THE PROVINCES.

The works at Lowestoft harbour are in more active progress than heretofore. A design by Messrs. Brown and Kerr for villas and a terrace is about to be realised. The large hotel is not yet opened, but the new marine terrace is in occupation.——The old church of St. Bartholomew, at Hyde, is under repair.——At St. Lawrence church, besides the ancient painting representing St. Christopher, the stripping of the plaster from the walls has brought to light a piscina, situated in the south wall, near the altar, and an ogee canopy in the east wall, apparently of the same date as the large east window.——The affairs of the Liverpool and Harrington waterworks have been wound up.——New arrangements as to numbering and naming the streets are in progress at Liverpool.——During a late storm some rounds of stone were thrown down from the spire of the new church at Runcorn, which had been raised 70 feet, with the scaffolding 20 feet higher, which also gave way, injuring some of the workmen. The roof and pews were damaged by the stones.——The new Baptist schools at Bilston have been opened. ——The Roman Catholics are about to build a 'splendid cathedral' at York.——The new baths and washhouses at Newcastle are ready for opening on 18th inst. The charges are proposed to be, 1d. for a plunge bath, and 2d. for a warm one; washing and drying apparatus, 1d. per hour.——Christ Church, Walker, was consecrated on Tuesday week. The building is extremely simple, but ecclesiastical in aspect. It is in the Early English style, with chancel (31 feet by 24), nave, north aisle, south porch, small vestry, and bell gable. It is lighted on the north and south sides by double lancet windows, and on the west by two long lancets. The chancel is lighted by three lancets, and a circle cinquefoiled above them, all filled with painted glass; and also by a small low lancet at the S.W. corner. The north aisle opens into the nave with four arches of two orders of chamfers and hood mouldings, which spring from circular piers, with richly moulded capitals and bases. The roofs of the chancel and nave are of a high pitch, open to the apex, and of a light construction. The sittings are all free, and confined to the nave and aisle. The pulpit and reading-desk are of oak, stained, like the rest of the woodwork. The stained glass, glazing, and illuminated scrolls on the walls, were by Messrs. Robert Lawson and Son, of Newcastle. Mr. A. B. Higham was the architect, and the contractor was Mr. Cail, of Newcastle. The cost is about 1,400*l.*, of which 1,100*l.* have been subscribed.——The Imperial Slate Quarries at Nenagh, which employ 400 to 500 persons, have been in a critical position for some time, but are now likely to be established on a more active and permanent basis.

RAILWAY JOTTINGS.

From a return presented, by her Majesty's command, to Parliament, it appears that during the six months ending 30th June last, 90 persons have been killed, and 99 injured by railway accidents in Great Britain and Ireland. On an average, we have thus a fellow-creature every day either killed or injured; the latter being often a worse case than the former, to which it after all but too often leads.——The Directors of the North-Western line lately allowed a pleasure excursion from the metropolis to Edinburgh and back to take place at the very moderate rate of 2*l.* for nearly 1,000 miles; and to Liverpool and Manchester and back, a distance of 440 miles, for one guinea. The fast coach to Liverpool alone, in 31 hours, cost 2*l.* 7*s.* outside seat. During the past three years the trains employed in the same excursions have carried upwards of 7,000 passengers—itself a pretty considerable stroke of business. In one of them alone there were 54 carriages, with 1,080 passengers.——The Carlisle, Dumfries, and Glasgow line was opened from Gretna to Dumfries on Tuesday week. The Bill for the line was obtained in 1846, and the works commenced beginning of last year. They do not present any extraordinary engineering difficulty—the timbers on Lochar Moss, the rock embankment a mile and a half long at Dormore, the skew bridge across the Annan and Dumfries road, and the bridge of seven arches at Annan, being the most remarkable features. The contractors were Mr. Jeff, Messrs. Ritson, Mr. Ross, and Mr. Goslin. Mr. Ritson's contract includes a deep cutting of rock, about seven miles from Dumfries, where a great deal yet remains to be done.——The sum of 7,050*l.* has been awarded to Mr. Warren, of Killiney, for compensation for encroachment upon his property, at Killiney Hill, by the Dublin and Bray line, now in progress. Mr. Recorder Shaw acted as umpire in the case. The award of an arbitrator, against which there was an appeal, was 17,000*l.* The Company offered about 6,000*l.*——The *Monmouth Merlin* states that Mr. N. Bowen, of the Newport and Pillgwenlly Foundry, is engaged in the formation of an iron bridge, of 52 feet span, with girders of 9 to 10 tons weight each, and abutment plates of 5 to 6 tons weight each, for the Newport and Pontypool line. By an improved blower, six tons of metal, in place of three, are now melted at these works in three hours.

GUTTA PERCHA.

The applications of this mysterious material are so numerous and varied, that our readers, we have no doubt, will gladly hear something of its history and manufacture. At the late meeting of the British Association for Science, Mr. Whishaw exhibited numerous specimens of it, in the shape of small thread, and large driving-bands for steam-engines; stout constables staves for modern beads, and fine medallions of ancient ones; speaking pipes, and inkstands; whips, and water-buckets. He also read a paper on the subject, reported in the *Athenæum*, which, after shewing that gutta percha was the concrete juice of a large tree of the same name, abounding in Borneo, &c., obtained by tapping the tree periodically by the Malays, stated that its introduction into this country was purely accidental, Dr. Montgomery having transmitted the first sample of it to the Society of Arts in 1843. The first articles of use made of gutta percha in this country were laid before the society in 1844, and consisted of a lathe-band, a short length of pipe, and a bottle case, which the reader had himself made by hand, having caused the concrete substance to become sufficiently plastic by immersing it in hot water. It was soon adapted to commercial uses; and from the period mentioned to July 11th in the present year, between 600 and 700 tons had been imported for the Gutta Percha Company. From 20 to 60 tons were now regularly imported every month. It appeared that the only pigments that could altogether be relied on to be used with gutta percha, without rendering it brittle, were orange lead, rose pink, red lead, vermilion, Dutch pink, yellow ochre, and orange chrome. Under the influence of heat and pressure, gutta percha would spread to a certain extent, and more so if mixed with foreign matters. The best composition for increasing the pliability of gutta percha was that formed in conjunction with caoutchouc tar, and next in order that of its own tar; and the best material at present known for moulding and embodying was obtained by mixing gutta percha with its own tar and lamp-black. In describing the process of manufacturing gutta percha, the author observed, that rude blocks of the material were first cut into slices, by means of a cutting machine formed of a circular iron plate of about 5 feet in diameter, in which there are three radical slots furnished with as many knives or blades. The blocks are placed in an inclined shoot, so as to present one end to the operation of the cutters. The slices are then placed in a wooden tank, containing hot water, in which they are left to soak until found in a plastic state. They are afterwards passed through a mincing cylinder, similar to that used in paper-mills for the conversion of rags into pulp, and then thoroughly cleansed in cold water tanks; the water, in cases of impure gutta percha, being mixed with a solution of common soda or chloride of lime. It is next put into a masticating machine, such as is used in the manufacture of caoutchouc, and then pressed through rollers; thus being converted into sheets of various width and thickness. When necessary, the sheets are again masticated, and again passed through rollers. These sheets are subsequently cut into boards by vertical knives, placed at the further end of the table, along which the sheets are carried by a cloth or web to another roller, round which they pass, and are cut into the required widths. The bands or straps are then removed, and coiled up ready for use. Driving bands for machinery are thus made, and shoe soles and heels are stamped out of similar sheets of gutta percha. In making tubes or pipes, either of gutta percha or any of its compounds, a mass of gutta percha, after being thoroughly masticated, is placed in a metal cylinder furnished with a similar piston, by which it is pressed down into an air box, kept hot with steam, which has at its lower end a number of perforations, through which the plastic material is forced into a cup, whence it passes out, round a core, into the desired tubular form, and thence through a gauge to the required size, and into a receiver of cold water, being drawn to the other end of a long trough by a cord passing round a pulley at the far end of the trough, and returning to the person in attendance on the machine, who gradually draws the pipe away from the air machine. Thus tubes of considerable length and diameter are made to a very great extent, and are used for the conveyance of water and other liquids, and are now under test for the conveyance of gas.

BOILER EXPLOSIONS.

The recent prevalence of boiler explosions has called forth hints in various forms for their prevention, among which is a pamphlet* embodying the results of the experience of a civil engineer (Mr. William Stewart) for the last twenty years, with all sorts of engines—not an experience in the practice of explosion we mean, but in its prevention, by the adoption of those rules of prudence which twenty years' experience cannot but force on the notice of any man of an observing and intelligent turn of mind.

Amongst the main causes of explosion he enumerates the tendency of the bottom of the boiler to give way to the expansive force of the steam sooner than the top, the safety valve in such case being perfectly useless;—want of water in the boiler;—excess of water;—attachment of the safety-valve by slime and dirt;—the very opening of the valve in some cases;—the formation of explosive gases from decomposition of the water, as well as of steam from its mere expansion, operative in such cases as that of the red heating of the boiler from want of water.

The bottoms of boilers, he observes, *should* be made of inflexible material, with an arch of perfect regularity, since sheet-iron, in cases of want of water, softens and weakens, bulges and bursts, while the upper part resists the pressure. To prevent the occurrence of such cases, of course a sufficient supply of water, and a safety-valve in good order, are requisite; but the bottom should be kept free from incrustation. When a want of water occurs, if the flues are not yet red hot, the engine should be kept in motion, and a supply slowly pumped in; but if the flues be anything red, the fire must be directly withdrawn, and the boiler cooled, *before* attempting to replenish with water, the engine being still kept in motion, and the safety-valve on no account moved, as a rapid escape of steam will set the remaining water in ebullition, cause it to fall in drops on the red-hot surface, and suddenly expand into volumes of steam, or even be as suddenly decomposed into the still more tremendous volume of its constituent gases.

Where the boiler is too full of water, the heat may be raised almost to a red heat without generating steam, unless the safety-valve be opened, when there will be imminent risk of an explosion from the sudden liberation and generation of steam at so high a heat. To prevent such an accident, the fire must be checked or withdrawn till the temperature of the water be reduced below the boiling point, and then, but not till then, the surplus quantity of the water may be withdrawn.

Accidents have even occurred when there was neither steam nor water in the boiler, nor fire underneath, but the previous heat must have decomposed water into gases afterwards exploded by a candle, &c.

* Longman and Co., London.

To learn more about OCR and PDF Compression go to our website